

**WE CLAIM:**

1. A sterile dialysis concentrate composition for use in a dialysis solution comprising sodium chloride (NaCl)  $90.72 \pm 9.0$  g/l, magnesium chloride (MgCl<sub>2</sub>)  $2.05 \pm 0.2$  g/l, and sodium bicarbonate (NaHCO<sub>3</sub>)  $28.35 \pm 2.8$  g/l.
2. A kit for preparing a dialysis solution comprising the sterile dialysis concentrate composition of claim 1 and optionally instructions for its use.
- 10 3. The kit of claim 2 further comprising sterile water sufficient to dilute the concentrate to a solution comprising Na  $140 \pm 14$  mmol/l, Mg  $0.75 \pm 0.07$  mmol/l, Cl  $116.5 \pm 11$  mmol/l, and HCO<sub>3</sub>  $25.0 \pm 2.5$  mmol/l.
- 15 4. A method of preparing a sterile dialysis solution comprising diluting a sterile, dialysis concentrate composition of claim 1 in a sufficient amount of sterile water to prepare a dialysis solution comprising Na  $140 \pm 14$  mmol/l, Mg  $0.75 \pm 0.07$  mmol/l, Cl  $116.5 \pm 11$  mmol/l, and HCO<sub>3</sub>  $25.0 \pm 2.5$  mmol/l.
- 20 5. A method for providing continuous renal replacement therapy to a patient comprising administering a sterile dialysis solution prepared according to the method of claim 4 in conjunction with a regional citrate anti-coagulant solution to a patient in need thereof.
- 25 6. A method of preparing a sterile infusate comprising diluting a sterile, dialysis concentrate composition of claim 1 in a sufficient amount of sterile water to prepare an infusate comprising Na  $140 \pm 14$  mmol/l, Mg  $0.75 \pm 0.07$  mmol/l, Cl  $116.5 \pm 11$  mmol/l, and HCO<sub>3</sub>  $25.0 \pm 2.5$  mmol/l.
- 30 7. A method for treating acute renal failure in a critically ill patient without introducing calcium into the blood removed from the patient during dialysis comprising administering a sterile dialysis solution prepared according to the

method of claim 6 in conjunction with a regional citrate anti-coagulant solution to a patient in need thereof.

8. A method for providing hemofiltration to a patient comprising  
5 administering a sterile infusate prepared according to the method of claim 6 in conjunction with a regional citrate anti-coagulant solution to a patient in need thereof.

9. A sterile dialysis solution comprising the concentrate as claimed in  
10 claim 1 and a physiologically acceptable diluent.

10. A sterile dialysis solution according to claim 9 comprising Na 140±14 mmol/l, Mg 0.75±0.07 mmol/l, Cl 116.5 ± 11 mmol/l, and HCO<sub>3</sub> 25.0 ± 2.5 mmol/l.

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11. A use of a sterile calcium-free bicarbonate concentrate according to claim 1 for preparing an infusate for hemofiltration.

12. A use of a sterile, calcium free bicarbonate concentrate according to  
20 claim 1 for preparing a dialysis solution for use in metabolic acidosis.

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